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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,883	11/04/2003	Shinzo Uchiyama	03599.000081	3504
5514	7590	05/25/2005	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112			TUROCY, DAVID P	
			ART UNIT	PAPER NUMBER
			1762	
DATE MAILED: 05/25/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/699,883

Applicant(s)

UCHIYAMA ET AL.

Examiner

David Turocy

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on 11/12/2002. It is noted, however, that applicant has not filed a certified copy of the 2002-328706 application as required by 35 U.S.C. 119(b).

Response to Amendment

2. The applicant's amendments, filed 5/4/2005, have been fully considered and reviewed by the examiner. The examiner acknowledges the amendment to claim 1 to include all the limitations of claim 4, which was indicated as allowable subject matter. The examiner also acknowledges the subsequent cancellation of claims 2-5. Claim 1 pending.

3. The indicated allowability of claim 4 is withdrawn in view of the newly discovered reference(s) to US Patent 6028393 by Izu et al. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

Art Unit: 1762

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto et al. (5,779,925) in view of Suzuki et al. (2001/0054605) and further in view of US Patent 6028393 by Izu et al.

Hashimoto discloses a method for modifying a surface of a substrate comprising introducing process gas including a material into a plasma process chamber, such as a microwave surface-wave plasma, generating plasma in the chamber, and changing at least once the electron temperature of the plasma (col. 9, lines 5-10, col. 10, lines 40-50, col. 14, lines 40-51, col. 16, lines 43-65, col. 17, lines 15-20).

Hashimoto is silent as to the temperature at which the substrate is maintained and therefore does not explicitly disclose the step of "maintaining a temperature of the substrate to a temperature which substantially prevents a material injected by a plasma process into the substrate from diffusing in the substrate, and provides an anneal effect"

However, because Hashimoto discloses at column 16 that the surface modification process can be a CVD of an insulating layer and Suzuki discloses in the working examples wherein an insulating layer is deposited by a microwave surface-

Art Unit: 1762

wave plasma process that a substrate temperature of 300 OC is operable, it would have been obvious to have maintained the substrate at 300 OC during the surface wave plasma deposition of an insulating layer with a reasonable of this temperature being suitable for formation of said insulation layer. As disclosed at page 11, lines 20-23, temperatures of 200-400 °C meet the limitation of "maintaining a temperature of the substrate to a temperature which substantially prevents a material injected by a plasma process into the substrate from diffusing in the substrate, and provides an anneal effect.

Hashimoto discloses at col. 9, lines 5-10 that pressure change and gas composition change can be used to change electron temperature, but Hashimoto in view of Suzuki fails to disclose changing the distance between a generation part and the substrate to be processed to change the electron temperature of the plasma.

However, Izu, teaching of a method for modifying the surface of a substrate discloses altering the pressure and/or changing the distance between the plasma and the substrate alters the electron temperature of the plasma (Column 9, line 62 Column 10, line 18). Izu discloses by varying the distance between the two, the degree of ion bombardment can be varied, which as been proven important parameter in surface modifications (Column 10, lines 6-18).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Hashimoto in view of Suzuki to vary the distance between the plasma generation and the substrate as suggested by Izu to provide a desirable change in electron temperatures because Izu discloses varying the distance

Art Unit: 1762

between the plasma and the substrate is known in the art to provide a change in electron temperature which allows for altering the degree of ion bombardment, an important parameter in surface modifications using microwave plasma.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Turocy whose telephone number is (571) 272-2940. The examiner can normally be reached on Monday-Friday 8:30-6:00, No 2nd Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

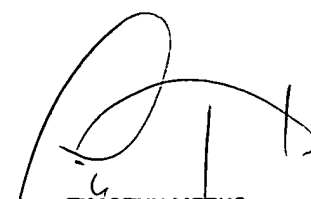
David Turocy

Application/Control Number: 10/699,883

Page 6

Art Unit: 1762

AU 1762



TIMOTHY MEEKS
SUPERVISORY PATENT EXAMINER